



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: SUPPLIER SURVEILLANCE
PROCEDURES

Date: 4/22/96
Initiated by: AIR-200

AC No: 21-20B
Change:

1. **PURPOSE.** This advisory circular (AC) clarifies and revises methods acceptable to the Administrator for surveillance of suppliers by the Federal Aviation Administration (FAA) Production Approval Holders. This AC applies to products, and parts thereof, submitted for airworthiness certification or approval after design approval (e.g., type certificate) and a production approval has been granted. It provides an acceptable means, but not the only means, of compliance with Title 14, Code of Federal Regulations (CFR), part 21 (part 21). Prototype components for products used in type certification programs, for which the FAA has requested conformity inspection, are NOT covered by the guidance outlined in this AC. The AC provides direct shipment procedures applicable to Production Approval Holder (PAH) supplier facilities located in the United States (U.S.) and other jurisdictions and procedures applicable to components/equipment/materials supplied by the PAH's customer. Such procedures are an important element of a PAH's total quality system. When regulatory requirements are addressed in this AC, the words "shall" and "must" are used.

2. **CANCELLATION.** Advisory Circular 21-20A, Supplier Surveillance Procedures, dated 7/25/94, is canceled by this revision.

3. **RELATED READING MATERIAL.**

a. Title 14 CFR part 21, Certification Procedures for Products and Parts.

b. Advisory Circulars:

(1) AC 21-1, Production Certificates.

(2) AC 21-18, Bilateral Airworthiness Agreements.

(3) AC 21-23, Airworthiness Certification of Civil Aircraft, Engines, Propellers, and Related Products Imported to the United States.

(4) AC 21-24, Extending a Production Certificate to a Facility Located in a Bilateral Airworthiness Agreement Country.

(5) AC 21-27, Production Certification Multinational/Multi-Corporate Consortia.

c. Federal Aviation Administration Orders:

(1) Order 1240.9, International Aviation Programs.

(2) Order 8100.7, Aircraft Certification Systems Evaluation Program.

(3) Order 8110.42, Parts Manufacturer Approval Procedures.

(4) Order 8120.2, Production Approval and Surveillance Procedures.

(5) Order 8130.21, Procedures for Completion and Use of FAA Form 8130-3, Airworthiness Approval Tag.

4. **GENERAL.**

a. Part 21 requires applicants to establish a quality control system as a prerequisite to the issuance of an FAA production approval and to maintain this system after the approval has been issued. Part 21 also requires that the PAH's quality control system provide a means to determine that supplier-produced components (e.g., materials, parts, and subassemblies), or services (e.g., special processes, calibration, etc.) conform to FAA-approved design data and are in condition for safe operation. Elements of a supplier control system are provided in paragraph 5.

b. The FAA may permit a PAH to use a supplier located in a non-U.S. jurisdiction, as provided in paragraph 5.b., when the PAH has established and implemented a supplier control system acceptable to the FAA. The PAH's system must assure that all parts and services furnished by its suppliers, including subtier suppliers, conform to the PAH's approved design data. The PAH is responsible for the suppliers' adherence to the PAH's quality control system. In this regard, a PAH does not "delegate" responsibility under its production approval to a supplier; the PAH remains liable under the Federal Aviation Act and the regulations for each non-conformity by a supplier. A PAH who plans to utilize a supplier in a non-U.S. jurisdiction should notify the FAA as soon as possible to determine the FAA's ability to support the program. With sufficient prior notice, the FAA can work with the PAH to resolve potential conflicts, and prevent the possibility of delayed programs. The design data, test requirements, and quality control system procedures, etc., imposed on the supplier by the PAH should be available in the English language for evaluation or approval by FAA personnel. Suppliers may use the data translated into appropriate language.

c. The FAA does not "approve" suppliers, but conducts surveillance of the supplier control system at both the PAH's and the supplier's facilities. This surveillance may include evaluations conducted in accordance with the Aircraft Certification Systems Evaluation Program.

5. **DISCUSSION.**

a. Supplier Control Procedures. As stated in paragraph 4.a. above, a PAH is responsible for ensuring that each product, or part thereof, conforms to the FAA-approved design data and is in a condition for safe operation. This responsibility remains the same whether it produces the entire product or parts at its facility or utilizes supplier facilities to furnish related parts or services. The PAH's quality control system must be FAA approved, and its implementation and maintenance is subject to evaluation by the FAA. FAA production approvals are based upon the ability of the quality control system to ensure production of conforming products or parts thereof. This system should be thorough and comprehensive. Supplier control procedures must be part of the approved quality control system. The elements described below are not all-inclusive and are intended to assist the applicant in developing policy and procedures for ensuring supplier materials, components, and services conform to FAA-approved design data. Policy and procedures should address or provide for, as applicable:

(1) **Technical Data Control.** Procedures should provide for control over supplier design and changes thereto.

(2) **PAH Evaluations.** Procedures should provide for initial and periodic evaluations of suppliers, as necessary, and corrective actions to correct any deficiencies found in the system. These procedures should include:

(a) Initial evaluation of suppliers to determine their capability to meet requirements. The PAH should make this determination prior to permitting the supplier to furnish any parts or services.

(b) Periodic evaluations to assure continued adherence to the requirements.

(c) Methods for determining the extent of the evaluations, dependent, as a minimum, on the type, complexity, method of control, and importance of products or services procured, and for providing on-site evaluation, process reviews, document reviews, or independent product evaluations.

(d) Implementation and documentation of effective corrective action when deficiencies are found.

(3) **Use of "Approved" Suppliers.** The PAH should establish procedures to determine that each supplier has the capability to furnish the parts or services in conformance with the approved technical data and the quality requirements imposed by the PAH. Suppliers who are found to have the required capabilities are normally considered "approved" by the PAH. Procedures should include:

(a) Criteria for supplier acceptability, based as a minimum on evaluation results and quality performance history for the commodities or services provided.

(b) Collection, evaluation, and reporting of quality performance data.

(c) A list of all suppliers who have been reviewed, evaluated, and found to be approved.

(d) Use of approved suppliers only.

(e) Methods for procurement from suppliers that require special control.

(f) Furnishing to suppliers a current list of the subtier sources evaluated by the PAH.

(4) **Approval of Supplier Quality System.** Procedures should include the method for approving a supplier's quality manual (or top level document).

(5) **Control of Furnished Equipment.** Procedures should include methods for accepting material furnished by the customer under controlled conditions and ensuring the material meets FAA-approved design.

(6) **Flow-Down of Applicable Technical and Quality Requirements.** Procedures should include methods for flow-down of applicable technical and quality requirements in purchase documents to all suppliers. These technical and quality requirements should include:

(a) Special process specifications/engineering requirements for suppliers performing special processes.

(b) Calibration traceable to a national standard and submittal of certificates to the PAH for suppliers performing calibration services.

(c) Software specification requirements for suppliers providing software.

(d) Submittal of certification test reports for all shipments of raw material.

(e) Identification of raw and process material in accordance with approved data.

(f) Appropriate identification and marking of products or parts thereof.

(g) Identification of the manufacturers of the supplies provided by warehouses and distributors.

(h) Delegation of inspection/material review authority. The PAH may allow a supplier to perform an appropriate inspection/major inspection when it has established that the supplier is capable of performing such inspection function.

1 Major inspections. These include:

(aa) Properties classified as critical by the approved design holder's engineering drawings, process specifications, test specifications, and quality control procedures, or

(bb) Properties that cannot be verified except by destructive test of each item or extensive disassembly.

2 Material review. Material review requirements include, as a minimum:

(aa) Identification and maintenance of relevant Material Review Board (MRB) procedures that define the scope and authority of the supplier MRB (e.g., documentation of nonconformances, maintenance of records, members of the MRB, mutilation of "scrap" material).

(bb) Process for submittal to the PAH of supplier nonconformances that must be approved before being considered changes to the FAA-approved type design.

(i) Authorization and requirements for direct shipment, when applicable. Direct shipments from suppliers located outside the U.S. do not meet the requirements of § 21.325. The FAA will not permit direct shipment from jurisdictions that do not have a Bilateral Airworthiness Agreement (BAA) with the U.S., unless the Administrator finds no undue burden on the U.S. in administering the applicable requirements of part 21. Direct shipment may only be used when the PAH:

1 Has FAA approved quality procedures that will equally compensate for the absence of inspection normally conducted at the PAH's facility. These compensating factors should include, as a minimum:

(aa) Source inspection of the components by the PAH.

(bb) Statistical sampling inspection of the same lot or batch of components/materials.

(cc) Onsite evaluations, detail component conformity inspections, and monitoring of the supplier's quality performance history.

2 Authorizes shipment(s) in writing, acknowledging full responsibility for conformity of the components to FAA-approved design data;

NOTE: An individual written authorization is not required for each direct shipment.

3 Ensures that each component so shipped is accompanied by a shipping ticket, invoice, or other document, with a PAH declaration that the individual component is authorized to be direct shipped and was produced under the terms of the production approval. This would not apply in the case of facilities which have been approved as an extension of the original PAH, e.g., associate facilities. The shipping document should also identify the applicable PAH identifier and if appropriate, the product(s) on which the component is eligible for installation; and

4 Maintains records of all direct shipment authorizations, and makes them available to the FAA upon request.

(j) Special packaging and preservation requirements for material protection.

(k) Identification of appropriate technical requirement revision levels.

(l) Notice of FAA authority to review supplier's facilities and parts/services, as necessary, to establish conformity to the approved design data.

NOTE: The FAA may witness any inspections and tests required to establish conformity.

(m) Incorporation of design changes as specified.

(n) Notification to the PAH of any latent defects, or defects required to be reported under § 21.3, Reporting of failures, malfunctions, and defects, in products or parts previously supplied.

(o) Formalized statistical quality control policy and procedures, when required.

(p) Requests for copies of control charts and other pertinent statistical data applicable to the time period during which the supplied products/parts thereof were produced.

(q) Submittal of supplier designs and changes to the PAH for approval prior to incorporation, when required.

(r) Submittal of changes to a supplier's quality system that may affect inspection, conformity, or the airworthiness of the product.

(s) Record retention requirements.

(t) Use of English language for quality data (e.g., supplier quality procedures, certificates, reports, or other similar data required by the PAH).

(7) **Purchase Document Review.** Procedures should include review of purchase documents by the quality control organization prior to issuance to ensure that all pertinent requirements have been incorporated.

(8) **Notification by Suppliers of Defective Delivered Products.** Procedures should include methods used to act upon notifications of nonconforming products, ensuring proper investigation and corrective action is taken.

(9) **Material Verification.** Procedures should include requirements for verification and identification of raw material, including process material (e.g., weld rod, etc.), and parts/services purchased from suppliers. These procedures should include, as applicable:

(a) Review of certification test reports to ensure all requirements are met.

(b) Types and frequencies of analyses required to verify certifications. As a minimum, these should consist of initial and periodic verifications, dependent on the history of supplier evaluations, past quality performance, and material importance.

(c) Nondestructive inspection techniques to be employed to verify the quality of castings, forgings, and other materials.

(d) Verification of proper identification and marking.

1 When specified, Material Laboratory Analysis Records are identifiable to batch number, serial number, or heat number for a given part number.

2 If Material Certificate/Laboratory Analysis is for a quantity of material, then serial numbers, if appropriate, are identifiable to the respective Material Certificate or Laboratory Analysis.

(e) For parts/services accepted at the PAH's facility, inspection may be accomplished upon receipt or, when characteristics remain accessible, at any time prior to the final acceptance of the end product or part thereof. The procedures should encompass a complete inspection of each part including, as appropriate for the particular part/service furnished, all dimensional characteristics, non-destructive testing, hardness checks, spectrographic analysis, functional tests, etc. When the PAH has established that the supplier's production/process methods will consistently produce parts/services that conform to the approved design data, statistical quality control methods may be

acceptable. The inspection plan that is used for acceptance of parts must preclude the acceptance of any nonconforming parts. In addition, when necessary to determine material integrity, the following methods should be considered:

1 Laboratory analysis for complete chemical and physical properties to be performed on each part/material when such tests can be performed without destroying the part/material (e.g., by test coupon, small section of part, etc.).

2 When laboratory analysis of components/materials cannot be performed without destroying the components/materials, a sample of such items should be subjected to a qualitative and quantitative analysis to verify complete chemical and physical properties.

(f) For parts/services that cannot or will not be inspected upon receipt, the PAH's procedures should include, as a minimum, inspection and testing of first articles to verify that the articles conform to the approved design data and periodic inspection thereafter. This may be accomplished at the supplier facility when the PAH can show that such inspections and tests will be accomplished under controlled conditions acceptable to the FAA. More than one article may require such inspection or testing until the production repeatability of the supplier has been established.

(10) **Shelf-Life Materials**. Procedures should include methods for verifying that purchased shelf-life materials meet specification requirements. These procedures should include:

(a) Verification upon receipt, and throughout their use, that purchased material having shelf-life requirements are within specified dates.

(b) Withholding from production, purchased material not within the specified shelf-life requirements unless special testing is accomplished to verify conformity.

(11) **Supplier-Furnished Parts/Services**. Procedures should include methods for receiving inspection to verify that supplier-furnished parts/services conform to FAA-approved design data. These procedures should include:

(a) Methods of determining conformity of supplier-furnished raw material, items, software, components, and assemblies.

(b) The extent of inspection upon receipt, depending upon inspectability for conformity and quality, supplier evaluation results, past quality performance, inspections and reviews conducted at the supplier's facility, and relative importance of the supplies.

(c) First article inspection and test of products produced by suppliers.

(d) Inspection and documentation requirements.

- (e) Evaluation of incoming statistical data.

(12) Material and Part Segregation. Procedures should include methods used to segregate parts and materials awaiting certification. These procedures should include methods to control, identify, and segregate material and parts awaiting testing or inspection from those already approved.

(13) Receiving Inspection Records. Procedures should include requirements for generating and maintaining receiving inspection records. These procedures should include:

- (a) Contents of each record used, including, as a minimum, for the material or product inspected, the name, part number, sample size, type and number of inspections made, conformance or nonconformance, number and description of nonconformances found, and action taken.

- (b) Requirements for record legibility, completeness, and accuracy.

- (c) Requirements that tape files, microfilm, etc., used for record retention exhibit legible data, acceptance stamps and/or signatures.

(14) Communications with FAA. Procedures should include requirements for making certain supplier information available to the FAA upon request. This information should include but is not limited to:

- (a) The name and address of each supplier who performs major inspection/material review for the PAH.

- (b) The name and address of each supplier who furnishes parts/services where a determination as to conformance to the approved design data cannot, or will not, be made upon receipt at the PAH's receiving facility.

- (c) Where, and by whom, the part or service will undergo inspection.

- (d) The name, title, and telephone number of the person to contact at the supplier facility who can furnish purchase order(s), quality control data, technical data, and other pertinent data/information to the FAA.

- (e) Methods for notifying the FAA of all new suppliers and of the receipt of first articles produced by those suppliers.

- (f) Methods for notifying the FAA of each supplier authorized to direct ship.

- (g) The results of the PAH's evaluations, audits, and/or other surveillance activities of the suppliers.

- (h) The quality control procedures required to be implemented at suppliers.

(15) Nonconformances or Service Difficulties. Procedures should define the PAH's controls, responsibilities, and corrective actions relative to nonconformance or service difficulties involving components/materials in-plant, or in-service, including spares in storage or shipped to a user.

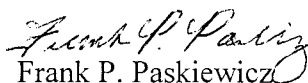
b. Supplier Utilization. In order that the FAA may accomplish its statutory responsibility under Title 49 United States Code: Subtitle VII Part A, Section 44713(b), Inspection and Maintenance, a PAH shall not use a supplier in any jurisdiction which would in any way inhibit the FAA from evaluating the supplier or its facilities.

NOTE: For the purpose of supplier surveillance, the FAA would not evaluate the quality control system of the supplier, only the control system established by the PAH.

(1) If the PAH uses a supplier in a jurisdiction with which the U.S. has a BAA, the FAA may utilize a Civil Aviation Authority (CAA) for surveillance activities and/or inspections as a means of determining that the part or service provided by the supplier meets the type design, or that the supplier is adhering to the PAH's quality requirements. The PAH can NOT rely on FAA surveillance as a means of supplier control. When the CAA in a BAA jurisdiction is requested by the FAA to conduct surveillance activities or conformity inspection(s) at a supplier facility, the PAH will incur all charges that the CAA may impose to accomplish the request(s).

(2) A PAH may use a supplier located in a non-BAA jurisdiction only if the authorities of that jurisdiction would not inhibit, in any manner, an evaluation of the supplier by the FAA. Assurance of access should be provided to the PAH by both the supplier and the government of the non-BAA jurisdiction in which the supplier is located. This assurance of access should be made available to the FAA. If access is at any time obstructed or denied, the PAH will be instructed by the FAA to cease using the supplier.

c. Furnished Equipment. Buyers of new aircraft, aircraft engines, and propellers may supply new or used parts/equipment for installation. The terms "customer-furnished equipment," "buyer-furnished equipment," and "government-furnished equipment" are used by the aviation industry to identify equipment supplied to a PAH for installation on products or parts thereof. The PAH remains responsible for determining that the completed product, with the supplied equipment installed, conforms to the approved design and is in condition for safe operation.


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